

CLAIMS:

1. A device for use in controlling the quality of a perishable object, while progressing on its supply line, by monitoring the condition of a time-temperature indicator (TTI) associated with the object, the device comprising a sensing assembly for detecting a response of the TTI to a predetermined stimulus and generating measured data representative thereof, said measured data being indicative of the condition of the TTI, thereby enabling the determination of the remaining shelf life of the TTI and thereby any perishable good to which it is attached and calibrated.
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- 10 2. The device of Claim 1, wherein said external field is predetermined in accordance with the type of the TTI.
3. The device of Claim 1 or 2, wherein the detected response includes a light response of the TTI to predetermined incident light.
4. The device of Claim 3, wherein said light response is in the form of
15 spectral data.
5. The device of Claim 3, wherein said light response is in the form of certain color saturation.
6. The device of any one of Claims 3 to 5, wherein said light response includes reflections of the incident light.
- 20 7. The device of any one of Claims 3 to 6, wherein said light response includes light transmitted through the TTI.
8. The device of any one of Claims 3 to 7, wherein said incident light is in a visible spectral range.
9. The device of any one of Claims 3 to 8, wherein said sensing assembly
25 comprises a light source generating said predetermined incident light, and a light detector.
10. The device of Claim 9, wherein said light source is a flash lamp.
11. The device of any one of Claims 3 to 10, being a barcode reader.

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12. The device of any one of preceding Claims, comprising a communication utility for translating the measured data into an output signal in the form of at least one of electrical, optical, RF and acoustic signal, to be processed to determine the condition of the TTI, thereby enabling controlling the remaining shelf life of the
5 TTI.

13. The device of any one of preceding Claims, comprising a control unit connectable to said sensing assembly and preprogrammed to be responsive to the measured data for translating said data into a value corresponding to the measured condition of the TTI, said measured condition of the TTI being indicative of the
10 remaining shelf life of the TTI and consequently of the object said TTI is associated with.

14. An optical probe for determining the condition of a time-temperature indicator (TTI), the probe comprising: an optical sensing assembly for detecting a light response of the TTI to predetermined incident light and generating measured
15 data representative thereof; and a communication utility for translating said data into an output signal in the form of at least one of electrical, optical, RF and acoustic signal, to be processed to determine the condition of the TTI, thereby enabling controlling remaining shelf life of the TTI.

15. A system for controlling an object, associated with a time-temperature
20 indicator (TTI), while progressing on a supply line, the system comprising:

25 - a sensing assembly for detecting a response of the TTI to a predetermined stimulus and generating measured data representative thereof, said measured data being indicative of the condition of the TTI,
- a control unit connectable to said sensing assembly and preprogrammed to be responsive to the measured data for translating said data into a value corresponding to the measured condition of the TTI, said measured condition of the TTI being indicative of remaining shelf life of the TTI and consequently of the object said TTI is associated with.

30 16. A label, tag or packaging material, comprising a machine readable pattern having at least one feature of the pattern configured as a time-temperature indicator

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(TTI), said pattern being responsive to a predetermined stimulus in a time-temperature variable manner in accordance with time-temperature variations of the TTI.

17. The label, tag or packaging material of Claim 16, wherein readable data 5 from said machine readable pattern varies with time and temperature in accordance with time and temperature variation of the TTI condition, said readable data being thereby indicative of remaining shelf life of the TTI.

18. An object carrying a machine readable pattern that includes at least one 10 feature of the pattern configured as a time-temperature indicator (TTI), said pattern being responsive to a predetermined stimulus in a time-temperature variable manner in accordance with time-temperature variations of the TTI.

19. The object of Claim 18, wherein readable data from said machine readable pattern varies with time and temperature in accordance with time and temperature variation of the TTI condition, said readable data being thereby indicative of 15 remaining shelf life of the TTI.

20. A method for use in controlling an object while progressing on a supply chain, the object being associated with a time-temperature indicator (TTI), the method comprising:

- at a node of the supply chain, detecting a response of the TTI to a predetermined stimulus and generating measured data representative thereof,
- processing said measured data to determine the condition of the TTI, thereby enabling determination of remaining shelf life of said TTI thus enabling to define the object progress to a further node of the supply chain.

21. The method of Claim 20, wherein said supply line includes a plurality of 25 nodes where a product changes hands, said processing utilizes a predetermined protocol defining, for each of said nodes, a nominal range for the TTI condition giving an indication of the remaining shelf life at a given temperature.